CONTENTS

Volume 23, Number 1
January 1992

1 Maintenance and culture of living benthic molluscs from high Antarctic shelf areas
S. HAIN

13 Effects of yeast and algal diets on the growth and biochemical composition of the rotifer *Brachionus plicatilis* Müller in culture
W. D. NAGATA & J. N. C. WHYTE

23 A simple non-destructive biometric method for estimating fat levels in Atlantic salmon, *Salmo salar* L., parr
A. L. SIMPSON, N. B. METCALFE & J. E. THORPE

31 Effects of temperature on hatchability, development and growth of eggs and yolksac fry of *Oreochromis mossambicus* (Peters) under artificial incubation
R. P. SUBASINGHE & C. SOMMERVILLE

41 Effect of rearing density on the early growth and variation in growth of juvenile Arctic charr, *Salvelinus alpinus* (L.)
M. H. PAPST, T. A. DICK, A. N. ARNASON & C. E. ENGEL

49 Response of Israeli carp, *Cyprinus carpio* L., to lysine supplementation of a practical ration at varying conditions of fish size, temperature, density and ration size
S. VIOLA, E. LAHAV & Y. ARIELI

59 Population density, growth and diet of eels, *Anguilla anguilla* L., in two rivers in eastern England
N. A.-E. BARAK & C. F. MASON

71 Food of an introduced population of pikeperch, *Stizostedion lucioperca* L., in Lake Egirdir, Turkey
R. N. B. CAMPBELL

87 Hooking mortality of white crappie, *Pomoxis annularis* Rafinesque, and spotted bass, *Micropterus punctulatus* (Rafinesque), in Texas reservoirs
M. I. MUONEKE

95 Chromosome polymorphism in wild Atlantic salmon, *Salmo salar* L., from Asturias, northern Spain
E. GARCIA-VAZQUEZ, A. M. PENDAS & P. MORAN

103 A multispecies stock assessment of a pelagic coastal fishery of the south-west Gulf of Mexico
F. ARREGUIN-SANCHEZ, E. A. CHAVEZ & J. A. MENCHACA

113 Assessment of an automated fish counter in a Canadian river
D. G. REDDIN, M. F. O'CONNELL & D. A. DUNKLEY

Short Communication

123 The effect of orally administered 17α-methyltestosterone and 3,3′-triido-L-thyronine on growth of seawater-adapted tilapia, *Oreochromis mossambicus* (Peters)
R. D. HOWERTON, D. K. OKIMOTO & E. G. GRAU

129 **Book Reviews**

Volume 23, Number 2
March 1992

133 Changes in gross protein and lipid requirements of rainbow trout, *Oncorhynchus mykiss* (Walbaum), at elevated temperatures
T. HECHT & A. G. McEWAN

149 Survival, growth and gonad development of triploid red sea bream, *Pagrus major* (Temminck et Schlegel): use of allozyme markers for ploidy and family identification
K. SUGAMA, N. TANIGUCHI, S. SEKI & H. NABESHIMA

161 Growth of juvenile *Trichogaster leerii* (Bleeker, 1852) on diets with various protein levels
G. DEGANI & N. GUR

167 Effects of substituting fish meal with *Azolla pinnata* in practical diets for fingerling and adult Nile tilapia, *Oreochromis niloticus* (L.)
A.-F. M. EL-SAYED

175 Utilization of cocoa-pod husk in low-cost diets by the clariid catfish, *Clarias isheriensis* Sydenham
O. A. FAGBENRO

183 Artificial insemination in tench, *Tinca tinca* L.
O. LINHART & P. KVASNIČKA

189 Growth, digestive enzyme activities and hepatic glycogen levels in juvenile *Colossoma macropomum* Cuvier from South America during feeding, starvation and refeeding
U. KOHLA, U. SAINT-PAUL, J. FRIEBE, D. WERNICKE, V. HILGE, E. BRAUM & J. GROPP

209 Enhancement of the production of turbot, *Scophthalmus maximus* (L.), larvae by controlling overripening in mature females
C. FAUVEL, M. H. OMNES, M. SUQUET & Y. NORMANT

217 Influence of photoperiod, frequency of stripping and presence of females on sperm output in turbot, *Scophthalmus maximus* (L.)
M. SUQUET, M. H. OMNES, Y. NORMANT & C. FAUVEL

227 Mark–recapture experiments with noble crayfish, *Astacus astacus* L., in a Norwegian lake
J. SKURDAL, T. QVENILD & T. TAUGBØL

235 Identification of hatchery-reared and naturally produced Atlantic salmon, *Salmo salar* L., juveniles based on examination of otoliths
K. HINDAR & J. H. L'ABÉE-LUND

243 Seasonal relationships of relative weight to body composition in white crappie, *Pomoxis annularis* Rafinesque
R. M. NEUMANN & B. R. MURPHY

253 Decline and fall of the salmon fisheries in the Netherlands: is restocking the Rhine a reality?
S. J. DE GROOT

Short Communications

265 Growth of the African lungfish, *Protopterus amphibius* Peter, in aquaculture
S. BAER, R. D. HALLER & T. A. FREYVOGEL

269 Discovery of the fish louse, *Argulus japonicus* Thiele (Crustacea: Branchiura), in Britain
S. K. RUSHTON-MELLOR

273 A sexually mature female Atlantic salmon, *Salmo salar* L., smolt
A. MOORE & W. D. RILEY

Volume 23, Number 3
May 1992

275 Growth and sexual maturation in Atlantic salmon, *Salmo salar* L., reared in sea cages at two different light regimes
T. HANSEN, S. STEFANSSON & G. L. TARANGER

281 Effects of induced triploidy on aggressive display in the fighting fish, *Betta splendens* Regan
S. KAVUMPURATH & T. J. PANDIAN

291 Bioenergetic modelling of effects of fertilization, stocking density, and spawning on growth of the Nile tilapia, *Oreochromis niloticus* (L.)
KWANG MING LIU & WILLIAM Y. B. CHANG

303 Controlled hatchery production of *Clarias gariepinus* (Burchell): growth and survival of larvae at high stocking density
G. S. HAYLOR

315 Optimum food particle size in relation to body size of common carp, *Cyprinus carpio* L., fry
M. R. HASAN & D. J. MACINTOSH

327 Feeding and growth of glass eels, *Anguilla anguilla* L.: the effect of feeding stimulants on feed intake, energy metabolism and growth
L. T. N. HEINSBROEK & J. G. KREUGER

337 Factors affecting the activation, motility and cryopreservation of the spermatozoa of the yellowfin bream, *Acanthopagrus australis* (Günther)
J. THOROGOOD & A. BLACKSHAW

345 Blood electrolyte and prolactin regulation in rainbow trout, *Oncorhynchus mykiss* (Walbaum), exposed to nitrite
E. M. WILLIAMS & F. B. EDDY

353 Effects of rearing density on sexual maturation and growth in sea-cage reared Atlantic salmon, *Salmo salar* L.
H. A. McLAY, A. F. YOUNGSON, R. S. WRIGHT & R. JOHNSTONE

356 Migration of Atlantic salmon, *Salmo salar* L., parr through a Norwegian fjord: potential infection path of *Gyrodactylus salaris*
R. A. LUND & T. G. HEGGBERGET

373 Comparison of Atlantic salmon, *Salmo salar* L., stocks exploited by commercial fisheries in the Adour Basin, France at the end of the 19th and 20th centuries
F.-X. CUENDE & P. PROUZET

385 An experiment in the planting of Atlantic salmon, *Salmo salar* L., fry
P. E. SHACKLEY, M. J. DONAGHY & D. W. HAY

393 Reared Atlantic salmon, *Salmo salar* L., in the catches of a salmon fishery on the western coast of Scotland
J. H. WEBB & A. F. YOUNGSON

399 Stranding of pond- and hatchery-reared juvenile brown trout, *Salmo trutta* L., during draw-down of a pond
T. HESTHAGEN & O. HEGGE

Volume 23, Number 4
July 1992

405 Effect of fluoxymesterone on sex ratio and growth of Nile tilapia, *Oreochromis niloticus* (L.)
R. P. PHELPS, W. COLE & T. KATZ

411 Growth, mortality and moulting rate of noble crayfish, *Astacus astacus* L., juveniles in aquaculture experiments
T. TAUGBØL & J. SKURDAL

421 Control and utilization of inorganic nitrogen in intensive fish culture ponds
Y. AVNIMELECH, S. DIAB, M. KOCHVA & S. MOKADY

431 Effect of six photoperiod protocols on the spawning time of two rainbow trout, *Oncoryhynchus mykiss* (Walbaum), populations in north-west Greece
M. PAVLIDIS, V. THEOCHARI, J. PASCHOS & A. DESSYPRIS

443 Biomass, carrageenan yield and reproductive state of *Hypnea musciformis* (Rhodophyta: Gigartinales) under natural and experimental cultivated condition
M. WALLNER, S. LOBO, N. BOCCANERA & E. MENDES DA SILVA

453 Determination of fat, protein and dry matter content of fish by mid-infrared transmission spectroscopy
P. ELVINGSON & L. O. SJAUNJA

461 Distribution of Atlantic salmon, *Salmo salar* L., in freshwater bodies of Europe
R. V. KAZAKOV

477 Survival and distribution of pond- and hatchery-reared 0+ brown trout, *Salmo trutta* L., released in a Swedish stream
I. NÄSLUND

489 River bed construction: impact and habitat restoration for juvenile Atlantic salmon, *Salmo salar* L., and brown trout, *Salmo trutta* L.
N. A. HVIDSTEN & B. O. JOHNSEN

499 Effect of ground-baiting on anglers' catches and nutrient budget of water bodies as exemplified by Polish lakes
A. WOŁOS, M. TEODOROWICZ & K. GRABOWSKA

Short Communications

511 Terminology for the early developmental stages of the African catfish, *Clarias gariepinus* (Burchell): working definitions for aquaculture
G. S. HAYLOR

515 Aspects of the potential of *Solea senagalensis* Kaup for aquaculture: larval rearing and weaning to an artificial diet
M. T. DINIS

521 **Book reviews**

Volume 23, Number 5
September 1992

525 Modelling phytoplankton abundance in a small enclosed bay used for salmon farming
R. D. PRIDMORE & J. C. RUTHERFORD

543 Effect of intraperitoneal passive implantable transponder (PIT) tags on the growth and survival of juvenile snapper, *Pagrus auratus* (Bloch and Schneider)
N. QUARTARARO & J. D. BELL

549 Association between initial weight and weight gain in brook trout, *Salvelinus fontinalis* Mitchill, and brown trout, *Salmo trutta* L.
G. W. WOHLFARTH

557 Brown trout, *Salmo trutta* L.: a new species for intensive marine aquaculture
F. KRIEG, E. QUILLET & B. CHEVASSUS

567 Chromosome doubling by pressure treatments for tetraploidy and mitotic gynogenesis in rainbow trout, *Oncorhynchus mykiss* (Walbaum): re-examination and improvements
L. FOISIL & D. CHOURROUT

577 Distribution and structure of the population of sea lice, *Lepeophtheirus salmonis* Krøyer, on Atlantic salmon, *Salmo salar* L., under typical rearing conditions
A. JAWORSKI & J. CHR. HOLM

591 Augmentation of the food supply for oyster larvae via bacterivorous flagellates: possible implications for larval breeding and oyster pond management
D. KLAVENESS

599 Determination of fisheries benefits from floodplain riverine systems in Bangladesh: a mathematical programming approach
M. AHMED

623 Resource partitioning and spatial segregation in native and stocked brown trout, *Salmo trutta* L., and Arctic charr, *Salvelinus alpinus* (L.), in a hydroelectric reservoir
J. H. L'ABÉE-LUND, H. SÆGROV & H. LURA

Short Communication

633 A stress test for determining vigour of post-larval *Penaeus monodon* Fabricius
M. R. P. BRIGGS

Volume 23, Number 6
November 1992

639 Optimum harvest time in aquaculture: an application of economic principles to a Nile tilapia, *Oreochromis niloticus* (L.), growth model
R. R. SPRINGBORN, A. L. JENSEN, W. Y. B. CHANG & C. ENGLE

649 Controlled hatchery production of *Clarias gariepinus* (Burchell 1822): an investigation of tank design and water flow rate appropriate for *Clarias gariepinus* in hatcheries
G. S. HAYLOR

661 Comparative analysis of stomach contents of cultured and wild cod, *Gadus morhua* L.
T. S. KRISTIANSEN & T. SVÅSAND

669 Sex reversal in the genus *Oreochromis*: 1. Immersion of eggs and embryos in oestrogen solutions is ineffective
S. ROSENSTEIN & G. HULATA

679 Blood oxygen tension and content in carp, *Cyprinus carpio* L., during hypoxia and methaemoglobinaemia
E. M. WILLIAMS, M. L. GLASS & N. HEISLER

691 Evaluation of techniques for marking juvenile barramundi, *Lates calcarifer* (Bloch), for stocking
D. J. RUSSELL & P. W. HALES

701 Distribution of fishes along the Sondu-Miriu River of Lake Victoria, Kenya with special reference to upstream migration, biology and yield
P. B. O. OCHUMBA & J. O. MANYALA

Short Communication

721 Escaped farmed Atlantic salmon, *Salmo salar* L., feeding in Scottish coastal waters
J. R. G. HISLOP & J. H. WEBB

725 **Book Reviews**

729 **Author Index**

732 **Subject Index**